deforming the bore of the sheath, a hermetic seal is formed, and the window is locked in place by the inwardly swaged end portion of lip **36**.

As an aid toward pressing window **22** into the bore, the total included angle of sealing surface **28** was chosen to be 20°, but alternate angles can be employed, as required by the malleability characteristics of sheath **12**.

As stated above, suitable materials for window **22** include diamond, germanium, zinc selenide and silicon. These materials have essentially no solubility in fluids with which they might come in contact in a human body and are physiologically nontoxic. All these materials have good transparency in the long wavelength part of the infrared spectrum. All these materials have a large refractive index and thus it is advantageous to provide the window **22** with an anti-reflection coating to maximize transmission. The coating on facet **24** may be any standard coating. However, the coating on facet **26** is exposed to body fluids and must be inert. A multilayer coating such as barium fluoride-zinc selenide will be reasonably resistant to such exposure.

This invention has been described in its presently contemplated best mode and it is clear that it is susceptible to numerous modifications, modes and embodiments within the ability of those skilled in the art and without the exercise of the inventive faculty. Accordingly, the scope of this invention is defined by the scope of the following claims.

What is claimed is:

1. An optical fiber assembly for use in a biological environment comprising:

an elongated physiologically toxic optical fiber having ends, said fiber being at least partially transparent to radiation at infrared wavelengths;

a physiologically nontoxic sheath surrounding said optical fiber adjacent at least one end thereof, said sheath being tubular with a bore therein extending beyond the end of said optical fiber, said sheath being made of malleable stainless steel material, said sheath bore having a swaged divergent interior surface adjacent the end of said sheath; and

a window within said sheath adjacent said end of said optical fiber, said window being physiologically nontoxic, said window being at least partially transparent to radiation at infrared wavelengths, and having a convergent swaging exterior surface resiliently engaged against and within said divergent swaged interior surface of said sheath bore to hermetically seal and plug the end of said tubular sheath without soldering, said sheath resiliently embracing and engaging said window, said window being at least partially transparent to radiation of the same wavelength to which said optical fiber is at least partially transparent.

2. The fiber optical assembly of claim **1** wherein said divergent bore of said sheath and said convergent surface of said window each comprise two conical surfaces of revolution about an axis centrally positioned through said optical fiber and said sheath respectively and joined together at a common base.

3. The optical fiber assembly of claim **2** wherein said window and said fiber are at least partially transparent to infrared radiation ranging from about 8 to 30 micrometers in wavelength.

4. The fiber optic assembly of claim **1** wherein the end of said sheath extends beyond the convergent external surface of said window to form a lip and said lip is positioned against said window beyond said convergent surface for retaining said window within said sheath and for retaining said convergent surface of said window against said divergent bore surface within said sheath.

5. An optical fiber assembly comprising:

an elongated toxic optical fiber having ends;

a nontoxic sheath surrounding said optical fiber adjacent at least one end thereof, said sheath being tubular with a bore therein extending beyond the end of said optical fiber, said sheath being made of malleable stainless steel material, said sheath bore having a swaged divergent interior surface adjacent the end of said sheath; and

a nontoxic window within said sheath adjacent said end of said optical fiber, said window having a convergent swaging exterior surface engaged against and within said divergent swaged interior surface of said sheath bore to hermetically seal and plug the end of said tubular sheath without soldering, said sheath resiliently embracing and engaging said window, a retaining surface on said window away from said convergent swaging exterior surface in a direction away from said optical fiber, said sheath engaging on said retaining surface on said window to retain said window within said sheath and retain said convergent swaging surface of said window against said swaged divergent bore surface within said sheath.

6. The fiber optic assembly of claim **5** wherein said convergent surface on said window is conical and said retaining surface on said window is a divergent conical surface thereon, said sheath engaging on said divergent surface to retain said window within said sheath.

7. The fiber optic assembly of claim **6** wherein said convergent surface on said window is a truncated right circular cone.

8. The fiber optic assembly of claim **6** wherein said convergent surface on said window is a multifaceted truncated cone.

9. The method of attaching a window plug within the end of a nontoxic malleable tubular sheath having a toxic optical fiber therein comprising the steps of:

forming the window plug with inside and outside window surfaces thereon and with a divergent surface thereon so that the window surface adjacent the end of the window plug having the smaller cross-section by virtue of the divergent surface forms the inside window surface;

positioning the window plug with its inside window surface directed toward the end of the malleable tubular sheath; and

pressing the window plug with its inside window first into the open bore of the tubular sheath so that the divergent surface on the window outwardly forms the malleable nontoxic sheath to produce a resilient hermetically sealed engagement of the sheath onto the window.

10. The method of claim **9** further including the step of plastically deforming the overhanging lip of said tubular sheath around the periphery of the window outwardly of said divergent surface to retain and lock the window within the sheath.

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